Multimodality imaging of a rare LV mass in an asymptomatic Patient

Hazem Amer[1], Fatema Qaddoura[1], Hani Mahmoud-Elsayed[2], Donya Alhassan[1], and Khalid Alfaraidy[1]

[1]King Fahd Military Medical Complex
[2]Queen Elizabeth Hospital Birmingham

July 7, 2020

Abstract

Cardiac imaging plays an important role in detection and differential diagnosis of cardiac masses. We report a 43-year-old male presented with palpitations. Clinical examination, ECG and chest x-ray were unremarkable. Trans-thoracic echocardiography showed a well-defined, large left ventricular mass at the anterolateral papillary muscle with multiple chordal insertion into the mass. Cardiac computed tomography showed heterogenous contrast enhancement. Cardiac magnetic resonance imaging showed high signal intensity, and early heterogeneous enhancement hyperintense on T2, with regional variations in vascularity, as well as late gadolinium enhancement. Post-surgical excision pathological examination confirmed cardiac hamartoma.

Manuscript

Primary cardiac tumors are rare, with a post mortem incidence of 0.001%-0.028%. (1) Imaging techniques play an important role in detection and differential diagnosis of cardiac masses.

We report a 43-year-old male presented to the Emergency Room with palpitations and atypical chest pain following emotional stress. Prior to this event he had never had any similar symptoms. Clinical examination, ECG and chest x-ray were unremarkable. Serial biomarkers were negative. Trans-thoracic echocardiography (figures 1) showed a well-defined, large left ventricular mass at the anterolateral papillary muscle, attached to the infero-lateral wall without invading it, there was a clear multiple chordae insertion into the mass, with no obstruction, or mitral valve dysfunction and no pericardial effusion. Cardiac computed tomography scan with contrast (figures 2) showed heterogenous contrast enhancement of a well circumscribed and clearly defined smoothly outlined mass. Cardiac magnetic resonance imaging (figures 3) showed high signal intensity, and early heterogeneous enhancement hyperintense on T2, with regional variations in vascularity, as well as delayed late gadolinium enhancement.

Pan CT scan (brain, chest, and abdomen) showing no extra-cardiac abnormalities. Coronary angiography showing normal coronaries. The mass was surgically removed and the mitral valve was repaired. The histopathological specimen (figure 4) revealed hypertrophic cardiac myocytes, cells were lying in a disordered pattern, mixed with vascular and fibrous tissues, and the final histopathology diagnosis was non-neoplastic tumor, cardiac hamartoma (2).

References:

1. Burke A, Virmani R. Tumors of the heart and great vessels. Atlas of tumor pathology. Series 3. Fascicle 16. Washington, DC: Armed Forces Institute of Pathology; 1996. p. 231
2. Tanimura A, Kato M, Morimatsu M. Cardiac hamartoma. Acta Pathol Jpn 1988;38:1481–4

Figure legends:

Figure 1: Trans-thoracic echocardiography, X-plane view showing three-chamber view to the left side and an off-axis two-chamber mass-focused view, that shows a well-defined, large left ventricular mass (arrow) attached to the infero-lateral wall without invading it, with no obstruction, or mitral valve dysfunction and no pericardial effusion. LV; left ventricle, LA; left atrium, RV; right ventricle.

Figure 2: Computed tomography scan with contrast showing heterogenous contrast enhancement. LV; left ventricle, LA; left atrium, RV; right ventricle, RA; right atrium.

Figure 3: Cardiac magnetic resonance imaging showing high signal intensity, and early heterogeneous enhancement hyperintense on T2. LV; left ventricle, LA; left atrium, RV; right ventricle.

Figure 4: Histopathological examination showed: Hyperplastic cardiac myocytes. The cells are lying in disordered pattern mixed with vascular and fibrous tissues. Findings consistent with cardiac hamartoma.